STUDIES IN BLOOD PRESERVATION:

THE SHAPE OF THE CONTAINER

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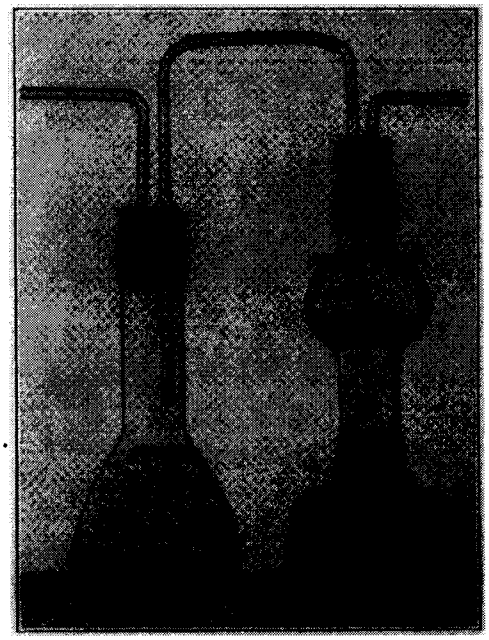
Following a preliminary report on the shape of the container as a factor in blood preservation,[1] various flasks have been tested out at the Presbyterian Hospital. A special receptacle[2] designed with a narrow center section allows the interface forming between the cells and the plasma to settle in the constricted portion. The results, judged by the retardation of both potassium and hemoglobin diffusion from the cells, have been so satisfactory as to lead to its adoption.

If the blood is not used within a week, the supernatant plasma is removed by suction and the plasma stored in the second bottle. Saline solution is added to bring the surface of the plasma up into the neck of the flask. This accomplishes a dual purpose. The addition of the saline solution tends to keep the fibrin in solution, and the reduction of the interface retards surface denaturation.



Flasks for blood preservation. The container on the right shows the formation of the interface between plasma and cells in the narrow section of the bottle. The supernatant plasma is transferred into the container on the left by suction.

The stability of both blood and plasma is further enhanced by drawing the sample into an atmosphere of carbon dioxide, thereby retarding the formation of ammonia as well as increasing the hydrogen ion concentration.[3] This procedure is readily accomplished by flushing out the flask with carbon dioxide and then introducing the blood into the bottom of the container.

These simple factors recommend themselves, as they retard the deterioration of preserved blood.

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